certified by an agency accredited for the purpose under part 1919 of this chapter. Test certificates shall be available for inspection.

(5) Wrought iron chains in constant use shall be annealed or normalized at intervals not exceeding six months. Heat treatment certificates shall be available for inspection. Alloy chains shall not be annealed.

(6) Kinked or knotted chains shall not be used for lifting. Chains shall not be shortened by bolting, wiring or knotting. Makeshift links or fasteners such as wire, bolts or rods shall not be used.

(7) Hooks, rings, links and attachments affixed to sling chains shall have rated capacities at least equal to that of the chains to which they are attached.

(8) Chain slings shall bear identification of size, grade and rated capacity.

(i) *Shackles.* (1) If available, the manufacturer's recommended safe working loads for shackles shall not be exceeded. In the absence of manufacturer's recommendations, Table C–3 shall apply.

(2) Screw pin shackles used aloft in house fall or other gear, except in cargo hook assemblies, shall have their pins moused or otherwise effectively secured.

TABLE C–3—SAFE WORKING LOADS FOR SHACKLES

Material size		Pin diameter		Safe working load in 2,000 lb tons
Inches	(cm)	Inches	(cm)	
½	(1.3)	⅝	(1.6)	1.4
⅝	(1.6)	¾	(1.9)	2.2
¾	(1.9)	⅞	(2.2)	3.2
⅞	(2.2)	1	(2.5)	4.3
1	(2.5)	1⅛	(2.9)	5.6
1⅛	(2.9)	1¼	(3.2)	6.7
1¼	(3.2)	1⅜	(3.5)	8.2
1⅜	(3.5)	1½	(3.8)	10.0
1½	(3.8)	1⅝	(4.1)	11.9
1¾	(4.4)	2	(5.1)	16.2
2	(5.1)	2¼	(5.7)	21.2

(j) *Hooks other than hand hooks.* (1) The manufacturers' recommended safe working loads for hooks shall not be exceeded. Hooks other than hand hooks shall be tested in accordance with § 1917.50(c)(6).

(2) Bent or sprung hooks shall be discarded.

(3) Teeth of case hooks shall be maintained in safe condition.

(4) Jaws of patent clamp-type plate hooks shall be maintained in condition to grip plates securely.

(5) Loads shall be applied to the throat of the hook only.

(k) *Pallets.* (1) Pallets shall be made and maintained to safely support and carry loads being handled. Fastenings of reusable pallets used for hoisting shall be bolts and nuts, drive screws (helically threaded nails), annular threaded nails or fastenings of equivalent holding strength.

(2) Damaged pallets shall be stored in designated areas and identified.

(3) Reusable wing or lip-type pallets shall be hoisted by bar bridles or other suitable gear and shall have an overhanging wing or lip of at least three inches (7.62cm). They shall not be hoisted by wire slings alone.

(4) Loaded pallets that do not meet the requirements of this paragraph shall be hoisted only after being placed on pallets meeting such requirements or shall be handled by other means providing equivalent safety.

(5) Bridles for handling flush end or box-type pallets shall be designed to prevent disengagement from the pallet under load.

(6) Pallets shall be stacked or placed to prevent falling, collapsing or otherwise causing a hazard under standard operating conditions.

(7) Disposable pallets intended only for one use shall not be reused for hoisting.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40198, July 25, 1997; 65 FR 40938, June 30, 2000]

§ 1917.43 Powered industrial trucks.

(a) *Applicability.* This section applies to every type of powered industrial truck used for material or equipment handling within a marine terminal. It does not apply to over-the-road vehicles.

(b) *General.* (1) After October 3, 1983, modifications, such as adding counterweights, that might affect the vehicle's capacity or safety shall not be performed without either the manufacturer's prior written approval or the written approval of a professional engineer experienced with the equipment who

has consulted with the manufacturer, if available. Capacity, operation and maintenance instruction plates, tags or decals shall be changed to conform to the equipment as modified.

(2) Unauthorized personnel shall not ride on powered industrial trucks. A safe place to ride shall be provided when riding is authorized.

(3) When a powered industrial truck is left unattended, load-engaging means shall be fully lowered, controls neutralized and brakes set. Unless the truck is in view and within 25 feet (7.62 m) of the operator, power shall be shut off. Wheels shall be blocked or curbed if the truck is on an incline.

(4) Powered industrial trucks shall not be operated inside highway vehicles or railcars having damage which could affect operational safety.

(5) Powered industrial trucks shall be marked with their rated capacities, which shall be visible to the operator.

(6) Only stable and safely arranged loads within the rated capacity of the truck shall be handled.

(7) The employer shall direct drivers to ascend and descend grades slowly.

(8) The employer shall direct drivers to slow down and sound the horn at crossaisles and other locations where visibility is obstructed.

(9) If the load obstructs the forward view, the employer shall direct drivers to travel with the load trailing.

(10) Steering knobs shall not be used unless the truck is equipped with power steering.

(11) When powered industrial trucks use cargo lifting devices that have a means of engagement hidden from the operator, a means shall be provided to enable the operator to determine that the cargo has been engaged.

(12) When cargo is being towed on pipe trucks or similar equipment, a safe means shall be provided to protect the driver from sliding loads.

(c) *Maintenace.* (1) Only designated persons shall perform maintenance and repair.

(2) Batteries on all powered trucks shall be disconnected during repairs to the primary electrical system unless power is necessary for testing and repair. On trucks equipped with systems capable of storing residual energy, that energy shall be safely discharged before work on the primary electrical system begins.

(3) Replacement parts whose function might affect operational safety shall be equivalent in strength and performance capability to the original parts which they replace.

(4) Braking systems or other mechanisms used for braking shall be operable and in safe condition.

(5) Powered industrial trucks shall be maintained in safe working order. Safety devices shall not be removed or made inoperative except as otherwise provided in this section. Trucks with a fuel system leak or any other safety defect shall not be operated.

(6) Those repairs to the fuel and ignition systems of industrial trucks which involve fire hazards shall be conducted only in locations designated as safe for such repairs.

(d) *Approved trucks*—(1) *Approved power-operated industrial truck* means one listed or approved for the intended use by a nationally recognized testing laboratory.

(2) Approved trucks acquired and used after February 15, 1972, shall bear a label or other identification indicating testing laboratory approval.

(3) When the atmosphere in an area is hazardous and the provisions of United States Coast Guard regulations at 33 CFR 126.15(e) do not apply, only power-operated industrial trucks approved for such locations shall be used.

(e) *Fork lift trucks*—(1) *Overhead guards.* (i) When operators are exposed to overhead falling hazards, fork lift trucks shall be equipped with securely attached overhead guards. Guards shall be constructed to protect the operator from falling boxes, cartons, packages, or similar objects.

(ii) Overhead guards shall not obstruct the operator's view, and openings in the top of the guard shall not exceed six inches (15.24 cm) in one of the two directions, width or length. Larger openings are permitted if no opening allows the smallest unit of cargo being handled to fall through the guard.

(iii) Overhead guards shall be built so that failure of the vehicle's mast tilting mechanism will not displace the guard.

(iv) An overhead guard, otherwise required by this paragraph, may be removed only when it would prevent a truck from entering a work space and if the operator is not exposed to low overhead obstructions in the work space.

(v) Overhead guards shall be large enough to extend over the operator during all truck operations, including forward tilt.

(2) *Load backrest extensions.* Where necessary to protect the operator, fork lift trucks shall be fitted with a vertical load backrest extension to prevent the load from hitting the mast when the mast is positioned at maximum backward tilt. For this purpose, a ''load backrest extension'' means a device extending vertically from the fork carriage frame to prevent raised loads from falling backward.

(3) *Forks.* Forks, fork extensions and other attachments shall be secured so that they cannot be accidentally dislodged, and shall be used only in accordance with the manufacturer's recommendations.

(4) *Counterweights.* Counterweights shall be so affixed that they cannot be accidentally dislodged.

(5) *Capacities and weights.* (i) Fork lift truck rated capacities, with and without removable counterweights, shall not be exceeded. Rated capacities shall be marked on the vehicle and shall be visible to the operator. The vehicle weight, with and without counterweight, shall be similarly marked.

(ii) If loads are lifted by two or more trucks working in unison, the total weight of the load shall not exceed the combined rated lifting capacity of all trucks involved.

(6) *Lifting of employees.* Employees may be elevated by fork lift trucks only when a platform is secured to the lifting carriage or forks. The platform shall meet the following requirements:

(i) The platform shall have a railing complying with §1917.112(c).

(ii) The platform shall have toeboards complying with §1917.112(d) if tools or other objects could fall on employees below.

(iii) An employee shall be at the truck's controls whenever employees are elevated.

(iv) Employees on the platform shall be protected from exposure to moving truck parts.

(v) The platform floor shall be skid resistant.

(vi) When the truck has controls elevated with the lifting carriage, means shall be provided for employees on the platform to shut off power to the vehicle.

(vii) While employees are elevated, the truck may be moved only to make minor placement adjustments.

(f) *Bulk cargo-moving vehicles.* (1) Where a seated operator may come into contact with projecting overheads, crawler-type bulk-cargo-moving vehicles that are rider operated shall be equipped with operator's guards.

(2) Guards and their attachment points shall be so designed as to be able to withstand, without excessive deflection, a load applied horizontally at the operator's shoulder level equal to the drawbar pull of the machine.

(3) After July 26, 1999 bulk cargo-moving vehicles shall be equipped with rollover protection of such design and construction as to prevent the possibility of the operator being crushed because of a rollover or upset.

(g) *Straddle trucks*—(1) *Accessibility.* Straddle trucks shall have a permanent means of access to the operator's station, including any handholds necessary for safe ascent and descent.

(2) *Guarding.* (i) Main sprockets and chains to the wheels shall be guarded as follows:

(A) The upper sprocket shall be enclosed;

(B) The upper half of the lower sprocket shall be enclosed; and

(C) The drive chain shall be enclosed to a height of eight feet (2.44 m) except for that portion at the lower half of the lower sprocket.

(ii) Gears shall be enclosed and revolving parts which may be contacted by the operator shall be guarded.

(iii) When straddle trucks are used in the vicinity of employees, personnel-deflecting guards shall be provided around leading edges of front and rear wheels.

(3) *Visibility.* Operator visibility shall be provided in all directions of movement.

(h) *Trailer-spotting tractors.* (1) Trailer-spotting tractors (fifth wheels) shall be fitted with any hand grabs and footing necessary for safe access to the fifth wheel.

(2) Rear cab windows shall be of safety glass or of equivalent material.

[48 FR 30909, July 5, 1983, as amended at 62 FR 40198, July 25, 1997; 65 FR 40939, June 30, 2000]

§ 1917.44 General rules applicable to vehicles.[4]

(a) The requirements of this section apply to general vehicle use within marine terminals. *Exception:* The provisions of paragraphs (c) and (l) of this section do not apply when preempted by applicable regulations of the Department of Transportation.[5]

(b) Private vehicle parking in marine terminals shall be allowed only in designated areas.

(c) Trailers shall not be disconnected from tractors at loading docks until the road wheels have been immobilized. The road wheels shall be immobilized from the time the brake system is disconnected until braking is again provided. Supplementary front end support shall be employed as necessary to prevent tipping when a trailer is entered by a material handling vehicle. Rear end support shall be employed if rear wheels are so far forward as to allow tipping when the trailer is entered.

(d) The employer shall direct motor vehicle operators to comply with any posted speed limits and other traffic control signs or signals, and written traffic instructions.

(e) Stop signs shall be posted at main entrances and exits of structures where visibility is impaired, and at blind intersections, unless direct traffic control or warning mirror systems or other systems of equivalent safety are provided.

(f) Vehicular routes, traffic rules, and parking areas shall be established, identified, and used.

(g) The employer shall direct vehicle drivers to warn employees in traffic lanes of the vehicle's approach.

(h) Signs indicating pedestrian traffic shall be clearly posted at vehicular check-in and check-out lines and similar locations where employees may be working.

(i) A distance of not less than 20 feet (6.1 m) shall be maintained between the first two vehicles in a check-in, check-out, roadability, or vessel loading/discharging line. This distance shall be maintained between any subsequent vehicles behind which employees are required to work.

(j) No unattended vehicle shall be left with its engine running unless secured against movement (see §1917.43(b)(3) for powered industrial trucks).

(k) When the rear of a vehicle is elevated to facilitate loading or discharging, a ramp shall be provided and secured. The vehicle shall be secured against accidental movement during loading or discharging.

(l) Only highway vehicle floors in safe condition shall be used.

(m) When flatbed trucks, platform containers or similar conveyances are loaded or discharged and the cargo consists of pipe or other products which could spread or roll to endanger employees, the cargo shall be contained to prevent movement.

(n) Vehicles used to transport employees within a terminal shall be maintained in safe working order and safety devices shall not be removed or made inoperative.

(o) *Servicing multi-piece and single piece rim wheels.* Servicing of multi-piece and single piece rim wheels is covered by §1910.177 of this chapter. (See §1917.1(a)(2)(xii)).

(1) *Scope.* This paragraph applies to the servicing of vehicle wheels containing tube-type tires mounted on multi-piece rims.

(2) *Definition.* ''Multi-piece rim'' means a vehicle wheel rim consisting of two or more parts, one of which is a

[4] The United States Coast Guard at 33 CFR 126.15(d) and (e) has additional regulations applicable to vehicles in terminals.

[5] Department of Transportation regulations in 49 CFR part 393, Subpart C—Brakes, address the immobilization of trailer road wheels prior to disconnection of the trailer and until braking is again provided. Section 49 CFR 393.84 addresses the condition of flooring. These DOT rules apply when the motor carrier is engaged in interstate commerce or in the transport of certain hazardous items wholly within a municipality or the commercial zone thereof.